DOCKET FILE COPY ORIGINAL

February 14, 2000



Magalie Román Salas
FCC Secretary
TW-A325
445-12th Street, S.W.,
Washington, DC 20554

RE: CC Docket 96-98

Dear Ms. Salas,

Please find enclosed an original and six copies of a Petition for Reconsideration filed by Low Tech Designs, Inc. in the above matter.

Please stamp one copy as filed and return to me in the enclosed stamped return address envelope.

Thank you for your assistance.

James M. Tennant
President
Low Tech Designs, Inc.
1204 Saville St.
Georgetown, SC 29440
843 527-4485

original

**Before the**
**Federal Communications Commission**
**Washington, D.C. 20554**



| | | |
|---|---|---|
| In the Matter of | ) | |
| Implementation of the | ) | CC Docket No. 96-98 |
| Local Competition Provisions | ) | |
| of the Telecommunications Act of 1996 | ) | |

## PETITION FOR RECONSIDERATION

## INTRODUCTION AND SUMMARY

Pursuant to the Commission Rules at 47 CFR 1.429, Low Tech Designs, Inc. (Low Tech) submits its Petition for Reconsideration of two critical competitive aspects of the Commission's Third Report and Order (*Order*) in CC Docket 96-98, released in this matter on November 5, 1999.

First, Low Tech seeks reconsideration of the Commission's refusal, based on technical feasibility grounds and on the record before it, to include Advanced Intelligent Network (AIN) triggers and AIN trigger upgrades in the Commission's definition of AIN call-related databases.

Secondly, Low Tech seeks reconsideration of the Commission finding that there is not enough evidence in the record to make a determination regarding the technical feasibility of interconnecting third-party AIN Service Control Points (SCPs) and Intelligent Peripherals (IPs) to incumbent LECs' (ILEC) signaling networks.

By refusing to include AIN triggers as an inseparable and key component of the unbundled call related database known as the Advanced Intelligent Network (a.k.a., the "Intelligent Network"), the Commission has failed to achieve the required nationwide

unbundling of call related database network elements as required by the Telecommunications Act of 1996.

The Commission has had before it, for many years, ample evidence that the unbundling of AIN triggers and interconnection of third party AIN SCPs and IPs is technically feasible. These capabilities have already been deemed technically feasible and directly ordered by several state commissions, have been deemed technically feasible by ILEC network disclosures or have been specifically allowed under ILEC tariff.[1] Nationwide unbundling of the Advanced Intelligent Network has not been achieved because of a failure by the ILECs to comply with state commission orders and the failure of the Commission to require the ILECs to comply with the clear unbundling provisions of the Act.

The collective impact of these two Commission decisions at hand is to completely block unfettered competition in the provisioning of Advanced Intelligent Network service and to hand an effective monopoly in this market segment to the ILECs. It is surprising that the Commission has taken this attitude, as AIN was one of the first ILEC capabilities targeted for unbundling under the Open Network Architecture doctrine, preceding by many years the Telecommunications Act of 1996 (the Act).[2]

This market-blocking attitude is particularly surprising in wake of the Commission's market-opening decisions in it's *Line Sharing Order* (Third Report and Order in CC Docket No. 98-147, Fourth Report and Order in CC Docket No. 96-98, FCC 99-54, Dec. 9, 1999).

---

[1] Low Tech has previously disclosed these facts to the Commission in this instant record and will reiterate and further substantiate them here.

[2] *See Notice of Inquiry*, In the Matter of Intelligent Networks, CC Docket No.91-346, Adopted: November 21, 1991 Released: December 6, 1991. Also, see generally *Filing and Review of Open Network Architecture Plans*, CC Docket No. 88-2, FCC 91-382, *Report and Order*, (adopted November 21, 1991) (BOC ONA Further Amendment Order).

In the *Line Sharing Order*, the Commission used its authority to allow competitors to provide high speed digital services without imposing a requirement to also provide the underlying voice services. In stark contrast, the Commission's instant *Order* requires an aspiring AIN based telecommunications service provider to also provide the underlying voice services through the use of an unbundled local switching port.[3] Low Tech sees no rationale for this disparate treatment of competitors attempting to introduce innovative services to telecommunications consumers.

## I. The Advanced Intelligent Network

The Advanced Intelligent Network is a unique call related database unlike other any other database unbundled by the Commission.[4] All other databases unbundled by the Commission have unique function-specific capabilities associated with them that are not practically separated from the local switching element.

Conversely, the AIN database is an open-ended platform specifically designed for the creation of new and innovative telecommunications services, without regard to local switching.[5] In recognition of this open-ended capability, the Commission has deemed that certain ILEC

---

[3] *See* 47 CFR 319(e)(2)(iii). Oddly, the Commission decided against this type requirement in its *Line Sharing Order*, and justified its decision with extensive and eloquent pro-competition, market opening language that is directly applicable to this instant *Petition*.

[4] The call related databases unbundled by the Commission include the Calling Name, 911, E911, Line Information, Toll Free, AIN and downstream number portability databases.

[5] While AIN triggers are resident in the logical portion of the ILEC switch, they do not require the assignment of a local switching port for their functionality. This was disclosed to the Commission in Low Tech's *Reply Comments* in this instant Docket, filed June 10, 1999, pg. 4, n. 8. Low Tech will admit that certain AIN triggers require a local switching port in order to be assigned, but has already shown, in the instant record, that it is technically feasible for these AIN based telecommunications services to be created and provided to consumers without the service provider also being the provider of the unbundled switching port or underlying voice services. This is similar to the provisioning of xDSL services by CLECs using the line sharing capabilities recently ordered by the Commission.

services - created using AIN's unique service creation capability - make these services eligible for "proprietary" treatment under Commission Rules.[6]

### A. AIN Triggers

As the ubiquitously deployed *Government Emergency Telecommunications System* (GETS) shows, complex, nationwide, uniformly designed AIN services using AIN triggers and other AIN platform elements alone are capable of being created and deployed.[7] Without Commission mandated access to AIN triggers as part of the AIN UNE, there are no Advanced Intelligent Network services available for creation on a national basis by competitive telecommunications service providers such as Low Tech.

Ironically, Low Tech has previously shown the Commission that access to AIN triggers, along with AIN software creation/deployment capabilities, are both available today to non-telecommunications carriers, entities not capable of legally obtaining or providing local circuit switching capabilities.[8] These entities have never been through the state CLEC certification process, a process Low Tech has completed before the Georgia Public Service Commission solely in order to create and offer AIN based telecommunications services.

---

[6] *See* 47 CFR 51.319(e)(2)(ii). An example of this treatment includes Ameritech's "Privacy Manager" service. Privacy Manager utilizes an Ameritech interconnected AIN Intelligent Peripheral to achieve the custom announcements necesary to implement the service.

[7] GETS is based on the federal government-assigned 710 NANP Area Code and the 3/6/10 Digit AIN trigger. It is deployed in wireless and wireline networks to provide real-time diverse routing for long distance telephone calls. See http://www.ncs.gov/ncs/html/AINFactSheet.html and http://www.ncs.gov/nc-pp/html/GETS/getscon.htm.

[8] BellSouth makes available, for public inspection, online copies of their General Subscribers Service Tariff. The BellSouth AIN Toolkit Service tariff, located at http://cpr.bellsouth.com/pdf/ga/a034.pdf, provides AIN trigger and AIN SCE/SMS access, by any person or entity wishing to develop and offer AIN services. These are the same AIN triggers the FCC has refused to unbundle based on "technical feasibility" grounds.

The Commission has refused to provide direct access to AIN triggers in the face of clear and convincing evidence in the instant record that direct access to AIN triggers exists today, separate from the ILEC switching UNE, even to the point of being available to non-telecommunications carriers lacking CLEC status.[9]

### 1. AIN Triggers Inseparable from other AIN Components

By the Commission's own admission, AIN software based "triggers" are an inseparable "first event" that must be used to invoke AIN service software created using a Service Creation Environment. The Commission states, in paragraph 405 of it's instant *Order*,

> "When a software "trigger" is activated, an AIN capable switch uses the SS7 network to access databases, SCPs, that contain service software and subscriber information, for instruction on how to route, monitor, or terminate the call."[10]

Although the Commission openly acknowledges AIN triggers as an integral part of offering AIN based services, it never includes these critical triggers, by name, as part of the unbundling requirements contained within its revised rules in response to the Supreme Court's remand order.

The current FCC's AIN unbundling rules in question have produced a situation where the ILEC is illegally able to require unnecessary network elements to be obtained (i.e., local switching) in order for the requesting telecommunications carrier to provide telecommunications services that are capable of being provided solely using AIN and SS7 network elements. This

---

[9] A partial list of various AIN triggers, directly available under tariff to any person or entity, without CLEC status, was included in this instant record by Low Tech. *See* Low Tech *Comments*, CC Docket No. 96-98, pgs. 5-6, May 26, 1999. One of these triggers (Public Feature Code) even allows *XX based abbreviated dialing arrangements to be introduced by non-telecommunications carriers.

[10] It is appropriate that the Commission include the language "an AIN capable switch", since AIN triggers are not automatically included when a Class 5 switch is purchased. AIN triggers, along with other AIN elements, are added as a separate functional network in the overall ILEC network. Although AIN triggers are resident on a switch, they are not technically required to be associated with the "local switching element" in order to function.

tying arrangement is similar to a personal computer user (telecommunications consumer) being restricted to the software (AIN services) offered only by the personal computer provider (telecommunications carrier).

By requiring a telecommunications carrier requesting access to the ILECs AIN platform to first purchase the ILECs local switching capability, only to gain access to the AIN triggers in question, the Commission has set itself at odds with its own Rules contained at 47 CFR 51.307(d) below.

> "An ILEC shall provide a requesting telecommunications carrier access to the facility or functionality of a requested network element separate from access to the facility or functionality of other network elements, for a separate charge."

**2. AIN is a Separate Logical Network from the Underlying Switching Network**

The Commission's own definition of the Advanced Intelligent Network UNE, at 47 CFR 51.5 below, does not mention the switching function of the ILECs network.

> "Advanced Intelligent Network" is a telecommunications network architecture in which call processing, call routing, and network management are provided by means of centralized databases located at points in an local exchange carrier's network."

This definition clearly shows that call processing, routing and network management functions are separate from the local call switching function. Additionally, 47 USC 153(29) below defines "network element" to specifically include capabilities relating to the "routing" of a telecommunication service. The AIN call related database is primarily used to create and implement telecommunications routing services.

> "The term `network element' means a facility or equipment used in the provision of a telecommunications service. Such term also includes features, functions, and capabilities that are provided by means of such facility or equipment, including subscriber numbers, databases, signaling systems, and information sufficient for

billing and collection or used in the transmission, routing, or other provision of a telecommunications service."

The Advanced Intelligent Network call related database is a completely separate network element from the local call switching network element. It is not technically or economically necessary for the local switching element to be obtained by a requesting telecommunications carrier to obtain the AIN elements needed to create an AIN service.[11] The new Commission unbundling Rules do not reflect this reality, and the Commission has therefore failed to unbundle the AIN call related database and has failed to give meaning to the unbundling requirements of the Telecommunications Act of 1996, 47 USC 251(c)(3) and 251(d)(2)(A) and (B).

### B. AIN Service Control Points and Intelligent Peripherals

After the critical AIN trigger activation starts the process of AIN call related database query and response, the SS7 signaling network, AIN Service Control Points (SCPs) and Intelligent Peripherals (IPs) are called upon to complete the call processing, routing and network management functions. All of these SCP and IP functions are separate from the ILECs unbundled local switching element function, and have been shown in this instant record as capable of being interconnected to ILEC networks.[12] The Commission itself acknowledged this fact regarding SCP interconnection, as shown below, back in 1996.

---

[11] The Supreme Court anticipated the impositon of wasteful costs on new entrants desiring less than the whole network. *See* AT&T v. Iowa Utils. Bd, 119 S.Ct. 721 (1999), Sec. 3(D), pgs. 27-28. "It is true that Rule 315(b) could allow entrants access to an entire preassembled network. In the absence of Rule 315(b), however, incumbents could impose wasteful costs on even those carriers who requested less than the whole network. It is well within the bounds of the reasonable for the Commission to opt in favor of ensuring against an anticompetitive practice."

[12] Low Tech advised the Commission, on pgs. 8-9 of it's May 26, 1999 *Comments* in this instant docket, that Southwestern Bell has previously issued a legally required network disclosure showing the technical feasibility for third party service providers to interconnect an AIN Intelligent Peripheral to its network, using the Bellcore TR-1129+ protocol. This protocol is not dependent upon the SS7 signalling network, but relies upon the Internet TCP/IP and other standardized ISDN signaling protocols contained within the TR-1129+ specification. This interconnection implies third party access to AIN triggers, specifically AIN 0.2 triggers, which are required in order to utilize AIN Intelligent Peripherals.

> "The Illinois Commission recently ordered access to incumbent LECs' AIN that does allow for .. [SCP] .. interconnection. We intend to address this issue early in 1997, either in the IN docket or in a subsequent phase of this proceeding, taking into account, *inter alia*, any relevant decisions of state commissions. (n. 1171. There are other additional outstanding issues from the *Intelligent Networks* proceeding that are not resolved here including direct access to the SCP and national standards for AIN access.) [13]

Unfortunately, the good intentions of the Commission to resolve outstanding national issues related to the Advanced Intelligent Network have not been achieved or, apparently, even attempted. This is in the face of the Commission terminating the *Intelligent Network* docket, incorporating it's record into this instant proceeding, and promising to further examine and resolve outstanding national AIN issues years ago.[14]

The Illinois and Georgia Commissions have both required SCP interconnection and third party access to AIN triggers after a finding of technical feasibility.[15] However, this significant fact is not mentioned in any subsequent Orders of the Commission following the Commission statement above and the instant determination that AIN trigger unbundling and SCP/IP interconnection is not technically feasible.

By refusing to order the technically feasible third party interconnection of Service Control Points and AIN Intelligent Peripherals, the Commission has eliminated its preferred approach of facilities based competition in the provisioning of telecommunications services, and

---

[13] *See First Report and Order* in this instant docket, August 8, 1996, para. 370. Third party SCP interconnection and direct access to AIN triggers was required by the Illinois Commerce Commission in an Order dated June 26, 1996 in Dockets 95-0458/95-0531 consolidated. *See* Attachment A. The Illinois Commission acknowledged SCP interconnection and direct access to AIN triggers as being "in the public interest", "consistent with a request for a network element under the federal Act", and technically feasible by virtue of "using industry standard signalling protocols".

Low Tech also disclosed to the Commission that third party SCP interconnection was ordered in arbitration proceedings by the Georgia Public Service Commission. *See* Low Tech *Comments*, n.11, page 13. This third party interconnection of an SCP (or IP) necessarily implies third party access to ILEC AIN triggers.

[14] The *Intelligent Networks* proceeding was terminated by Order, CC Docket No. 91-346, FCC 98-322 (rel. December 4, 1998).

[15] Other state commissions, unknown to Low Tech, may have already made similar determinations in arbitration decisions.

has restricted would be competitors to the realm of services deemed appropriate by the AIN software and hardware capabilities of the ILECs. A by-product of this refusal is the effective denial of a competitors ability to create proprietary AIN services, while ILECs are given full rein to create proprietary and Commission protected AIN software, such as Ameritech's Privacy Manager service.[16]

These refusals by the Commission are counter to the purposes of the Telecommunications Act of 1996 and to the intended widespread introduction of competition for all telecommunications services. AIN, including AIN triggers, has been recognized by experts in telecommunciations, as the needed "glue" for the transition from existing switched networks to the packet based networks of the future.[17] The failure of the Commission to guarantee non-discriminitory access to all aspects of the AIN unbundled network element represents a fatal roadblock to the transparent merging of the Public Switched Telecommunications Network (PSTN) and the Internet Protocol based advanced next generation networks that are now being created and deployed.

## II. Technical Feasibility of AIN Trigger Unbundling and SCP/IP Interconnection

In its *Third Report and Order*, CC Docket 96-98, Rel. November 5, 1999, Para. 407, the Commission declared:

> "[w]e find that there is not enough evidence in the record to make a determination about the technical feasibility of unbundling AIN triggers. We therefore decline to expand our definition of call-related databases to include AIN triggers, and

[16] See 47 CFR 319(e)(2)(ii).

[17] For a current discussion, by a Telecordia (Bellcore) Senior Director, of why the Advanced Intelligent Network is critical in the transition to next generation networks, see Attachments B and C (also available at http://www.telecoms-mag.com/issues/199903/tci/future.html).

reaffirm the definition of call-related databases in the *Local Competition First Report and Order*."

47 CFR 51.5 defines the term "technically feasible" below.

> *Technically feasible*. Interconnection, access to unbundled network elements, collocation, and other methods of achieving interconnection or access to unbundled network elements at a point in the network shall be deemed technically feasible absent technical or operational concerns that prevent the fulfillment of a request by a telecommunications carrier for such interconnection, access, or methods. A determination of technical feasibility does not include consideration of economic, accounting, billing, space, or site concerns, except that space and site concerns may be considered in circumstances where there is no possibility of expanding the space available. The fact that an ILEC must modify its facilities or equipment to respond to such request does not determine whether satisfying such request is technically feasible. An ILEC that claims that it cannot satisfy such request because of adverse network reliability impacts must prove to the state commission by clear and convincing evidence that such interconnection, access, or methods would result in specific and significant adverse network reliability impacts.

Both the Georgia and Illinois Commissions have addressed and resolved the issue of technical feasibility of direct access to AIN triggers and third party SCP interconnection. For unknown reasons, the Commission has not taken these state decisions into account beyond a mere passing mention in the *First Report and Order* in this instant Docket, as cited earlier.

Therefore, the only remaining issue at hand is the continued insistence by ILECS for "mediation" of this access, a capability long promised, but never delivered. Because technical feasibility has already been established, this continued insistence for "mediation" falls under the above definition's provision that "[t]he fact that an ILEC must modify its facilities or equipment to respond to such a request does does not determine whether satisfying such request is technically feasible."

In this case of interconnection of third party SCPs and direct access to AIN triggers, the record before the Commission is not one of "not technically feasible", but one of a collective ILEC failure to comply with state commission orders to remedy their *Carterphone-like* claims of potential of network harm.

It is also reflective of a continued insistence on mediated access for competitors, while ILECs enjoy complete and direct access to the AIN platform without modifying its facilities or equipment to allow others the same creative privileges using an AIN platform of their own. In this regard, Low Tech agrees with AT&T, "that mediation will not be necessary, because just as carriers are certified before interconnecting with other carriers' SS7 networks, carriers can be certified for AIN".[18]

In its *Notice of Inquiry In the Matter of Intelligent Networks* (CC Docket 91-346, para 21, Dec. 6, 1991), the Commission addressed "meditated access" to AIN triggers by third party SCPs. To Low Tech's knowledge, this may be the first reference by the Commission to this form of access to AIN triggers by competitors. The Commission said:

> "[w]e ask that those parties who believe that a form of "mediated access" to the network would be in the public interest, or who support other possible approaches, present a detailed proposal for a system that would permit such access."

Over eight years later, with continued ILEC, Bellcore/Telecordia and industry advances in AIN, SS7, STP, and SCP and IP technology, it is incredulous that the issue of mediated access is still being used as a block to third party innovation in AIN services. By washing its hands of this issue in its instant *Order* and failing to acknowledge the continued innovation blocking intransigence of the ILECs and the ILEC dominated Alliance for Telecommunications Industry

---

[18] See *First Report and Order* in this instant docket, August 8, 1996, para. 342.

Solutions (ATIS), the Commission has failed to perform the national standards setting role it plays in this critical area of telecommunications innovation.

The Commission recently quoted itself regarding its national standards setting role - rightfully and ironically asserted in the *Intelligent Network* proceeding - in its *Line Sharing Order* at footnote 421. It said:

> "[t]he Commission previously has found that it "has avoided a dominant role in standards-setting as long as the activities of standards bodies do not frustrate the Commission's goals and policies. However, to the extent that such activities do not support public interest goals, it has reserved a role for itself and could play some part in standards development." *Intelligent Networks, Notice of Proposed Rulemaking*, 8 FCC Rcd 6813, 6820 n.64 (1993).

The ILECs have conclusively shown their ability, for over eight years, to frustrate the previously identified public interest goals of introducing innovation in the provisioning of AIN services by competitors such as Low Tech. As a result, since the passage of the Telecommunications Act of 1996, Low Tech has been completely blocked in its ability to "provide the services it seeks to offer", using an unbundled element that is "necessary" and that when denied, completely "impairs" its ability to compete with the ILEC.

## III. CONCLUSION

In its instant *Order*, the Commission stated that "[o]ur refusal to grant Low Tech Design's request in this proceeding does not affect the ability of any state commission to address this issue." Para. 407.

As Low Tech has shown the Commission (and as the Commission has itself acknowledged), several state commissions have already found unbundled AIN triggers and third party Service Control Point interconnection technically feasible. The Commission refused to

take this into consideration before they arrived at their instant determination that further AIN unbundling is not technically feasible, as requested by Low Tech.

Southwestern Bell has issued a network disclosure showing the technical feasibility of third party Intelligent Peripheral interconnection, and Ameritech has deployed Intelligent Peripherals to provide the cutting edge features contained within their Privacy Manager product. These ILEC capabilities and determinations have also not been taken into consideration by the Commission.

By refusing to make a national determination on unbundled AIN triggers and third party interconnection of AIN SCPs and IPs, the Commission has gone against the intent and preamble of the Act to "promote competition and reduce regulation in order to secure lower prices and higher quality services for American telecommunications consumers and encourage the rapid deployment of new telecommunications technologies."

By referring Low Tech back to the state commissions, the Commission introduces an onerous and unnecessary requirement on a small business entity for extended legal proceedings, expensive legal fees, the uncertainty of being able to offer the services it seeks to provide in certain states, and the probability of a variety of different state interpretations on the extent of AIN unbundling and SCP/IP interconnection, if allowed.[19]

---

[19] *See Order*, para. 508. "Establishing a minimum national list of unbundled network elements facilitates negotiations and reduces regulatory burdens for all parties, including small entities. Adopting a national list lowers requesting carrier's cost by enabling them to implement regional and/or national business plans. In reaching this conclusion we considered one proposal to adopt national standards that would be applied by state commissions on a market-by-market basis. ***We concluded that this approach would lead to greater uncertainty in the market and would hinder the development of competition.*** We also found that it would complicate the negotiation of interconnection agreements and lead to increased litigation. Furthermore, this approach would increase the administrative burden on state commissions and parties arbitrating interconnection agreements before these state commissions. All of these factors would slow the development of competition." (footnote deleted, emphasis added)

Additionally, the states that have not already addressed these AIN issues have no desire to consider national issues of this scope and importance, showing a preference for the Commission to remove contentious unbundling and interconnection issues from their already overcrowded plates.[20]

Without a nationwide standard for AIN trigger unbundling and the interconnection of third party SCPs and IPs, the promotion of facilities-based competition, investment, and innovation in the provisioning of AIN services will be thwarted, a stated goal of the Commission. *Order*, para. 110. Consumers will not benefit from the rapid introduction of competition in all markets. *Order*, para. 107. Low Tech and other competitors will lack certainty in the market, to the detriment of their ability to obtain critical financing. *Order*, para. 114.

The Commission itself stated that "the legislative history indicates that Congress specifically contemplated that the Commission would open the last monopoly bottleneck strongholds in telecommunications by requiring incumbents to share their local exchange facilities, including ***"the equipment with capabilities of routing and signaling calls, network capacity, and network standards."***[21] *Order*, para. 123. (emphasis added)

AIN, including the inseparable and critical AIN triggers, is clearly the UNE that represents the last monopoly bottleneck in telecommunications for routing and signaling calls.

---

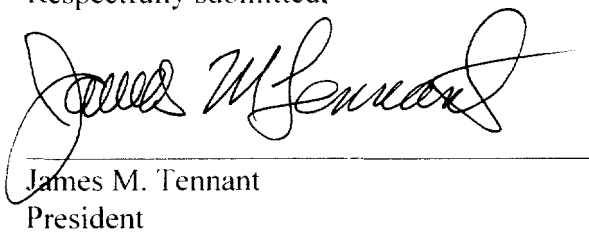
[20] *See Order*, para. 128. "Moreover, as the Illinois Commerce Commission; California PUC, and Connecticut Department of Public Utility Control all assert, a national list will allow competition to proceed quickly because it will reduce the number of issues that the states must address in upcoming arbitrations under section 252(b) of the Act. This is significant because many states will be conducting arbitrations and reviewing interconnection agreements as the initial agreements that they approved in 1996 and 1997 begin to expire." (footnote deleted)

[21] H.R. Conf. Rep. 104-204, at 49 (1995).

Surely, the routing and signaling capabilities contained within AIN were those Congress had in mind in the above statement.

For all the reasons stated herein, Low Tech Designs, Inc. respectfully requests the Commission to reconsider its *Order* as outlined above, and establish nationwide rules for the unbundling and inclusion of AIN triggers (0.1, 0.2 and future triggers) as part of the AIN call related database UNE, separate from the local switching element, and for the interconnection of AIN Service Control Points and AIN Intelligent Peripherals by competitive local exchange carriers.

Respectfully submitted,

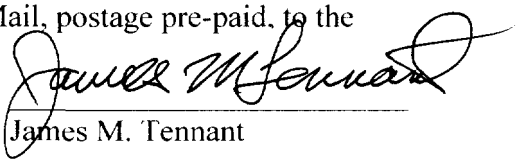


James M. Tennant
President
Low Tech Designs, Inc.
1204 Saville St.
Georgetown, SC 29440
843 527-4485

Dated: February 14, 2000

## CERTIFICATE OF SERVICE

I, James M. Tennant, do hereby certify that on this 14th day of February, 2000, I have served a copy of the foregoing document via U.S. Mail, postage pre-paid, to the following:



James M. Tennant

Chairman William E. Kennard
Federal Communications Commission
445 12th Street, S.W., Room 8B-201
Washington, D.C. 20554

Commissioner Gloria Tristani
Federal Communications Commission
445 12th Street, S.W., Room 8C-302
Washington, D.C. 20554

Commissioner Harold Furchtgott-Roth
Federal Communications Commission
445 12th Street, S.W., Room 8A-302
Washington, D.C. 20554

Commissioner Susan Ness
Federal Communications Commission
445 12th Street, SW., Room 8B-115
Washington, D.C. 20554

Commissioner Michael Powell
Federal Communications Commission
445 12th Street, S.W., Room 8A-204
Washington, D.C. 20554

Robert Pepper, Chief
Office of Public Policy
Federal Communications Commission
445 12th Street, S.W., Room 7C-357
Washington, D.C. 20554

Dale Hatfield, Chief
Office of Engineering and Technology
Federal Communications Commission
445 12th Street, S.W., Room 7C-155
Washington, D.C. 20554

David Farber
Chief Technologist
Office of Engineering and Technology
Federal Communications Commission
445 12th Street, S.W., Room 7A-325
Washington, D.C. 20554

Larry Strickling
Chief, Common Carrier Bureau
Federal Communications Commission
445 12th Street, S.W., Room 5C-450
Washington, D.C. 20554

ITS
1231 20th Street, N.W.
Washington, D.C. 20036

Janice M. Myles
Common Carrier Bureau
Federal Communications Commission
445 12th Street, S.W., Room 5C-327
Washington, D.C. 20554

Attachment A

STATE OF ILLINOIS

ILLINOIS COMMERCE COMMISSION

| | | |
|---|---|---|
| AT&T Communications of Illinois, Inc. | : | |
| Petition for a total local exchange wholesale service tariff from Illinois Bell Telephone Company d/b/a Ameritech Illinois and Central Telephone Company pursuant to Section 13-505.5 of the Illinois Public Utilities Act. | : | 95-0458 |
| LDDS Communications, Inc. d/b/a LDDS Metromedia Communications | : | |
| Petition for a total wholesale network service tariff from Illinois Bell Telephone Company d/b/a Ameritech Illinois and Central Telephone Company pursuant to Section 13-505.5 of the Illinois Public Utilities Act. | : | 95-0531 consol. |

ORDER

DATED: June 26, 1996

Commission Conclusion

Unbundling of OS/DA is a necessary requirement for effective competition. Ameritech's objections to AT&T's request in this regard are not adequately supported by the record. Ameritech argues that unbundling of OS/DA is not technically feasible, but has failed to provide persuasive evidence in support of that claim. Moreover, AT&T has presented what it deems a workable solution, i.e., the use of "line class codes" to route OS/DA calls, in opposition to Ameritech's claim that the separate routing of these calls is not possible at this time. Given the importance of this issue and the potential that competition will be the likely result of unbundling OS/DA from the wholesale offering, the Commission orders Ameritech and Centel to unbundle its OS/DA calls from it total service resale offering pursuant to Section 251 (c)(3).

## G. Direct Access to Ameritech's Advanced Intelligent Network

AT&T

AT&T has requested access to the LECs' AIN triggers so that non-facilities-based resellers can provide facilities-based innovations to the market. These services would include, among other things, messaging, emergency and security services and telecommunications services. AIN consists of three basic elements: Signal Control Points, Signal Switching Points, and Signal Transfer Points. The services that could be provided by a reseller typically would be housed in the Signal Control Points and could provide numerous services and processing.

AT&T contends that access to the switch triggers is appropriate in these proceedings, as they would provide innovations to the existing local network. AT&T concluded that competitive AIN offerings were in the public interest and that competitors should be allowed to make product development and marketing decisions based on competitive opportunity. AT&T dismissed the design and capacity problems Ameritech raised by stating that the capacity problems actually should be alleviated with the introduction of competitive databases. The AIN database inquiries and associated processing would be distributed over two or more competing platforms. AT&T indicated that Ameritech's proposal to develop services for resellers using its AIN platform was an unacceptable and anti-competitive option. Although other resellers may find this approach acceptable, AT&T felt that the service creation environment may be limited by the capabilities of the LEC's platform. Also, proprietary data would be stored in the LEC's network, hampering the reseller's ability to control access and to prevent compromise. Further, AT&T pointed out that Ameritech is currently concerned with its capacity for its own AIN platform.

AT&T maintains that new innovations through the use of the AIN should be encouraged on both a facilities-based as well as on a resold basis. AT&T's states that its request is consistent with a request for a network element under the new federal Act. Safeguards, however, are necessary to assure the integrity of the network. As Ameritech and Centel deploy AIN systems, they should be ordered to install them in a way that provides the necessary safeguards without erecting unnecessary barriers which would undermine AT&T's request.

Ameritech

Ameritech took the position that resellers should not be permitted direct access to it's Advanced Intelligent Network ("AIN"). The Company contends that the proposed requirement to require it to provide resellers with direct access to AIN is not a resale/wholesale tariff issue, but rather should be considered, if at all, as a network interconnection issue. Ameritech's position was that the issue is not appropriately addressed in this proceeding. Ameritech further asserted that even if it were appropriate to address in this proceeding, AT&T's proposal would raise serious policy issues. While Ameritech is willing to develop services for resellers using its AIN platform (assuming that resellers pay for the cost of development), to require access to AIN would provide resellers with almost unlimited ability to pick and choose the services they will provide using unbundled network elements. Ameritech observed that this could create an adverse effect in the market place.

Ameritech also pointed out that if the Commission entered such an order in this proceeding, it would be permitting access to AIN without any further regulatory involvement by the Commission. The Company's position was that such important policy matters should not be permitted to be determined unilaterally by the resellers. Ameritech maintained that there are already design and capacity problems with the AIN platform, and that permitting such unrestricted access on the part of resellers would only exacerbate those problems. It could also create unresolvable conflicts among carriers seeking access to the AIN platform. Ameritech noted that Staff has also expressed concern over AT&T's request for access to AIN inside Ameritech switches because of the risk of network failure.

Staff

Staff is concerned that direct access to the LEC database and switches for manipulation by the resellers may contain a high level of risk to the network through either ignorance or sabotage. Staff states, however, that this potential for network harm is reduced if safeguards are provided at the appropriate points so that the

network would not be jeopardized. Staff concluded, that with the safeguards in place the provisioning of facilities-based innovations by resellers should be encouraged.

Commission Conclusion

AT&T's request for access to the AIN triggers of Ameritech and Centel should be granted, subject to the certain conditions provided herein. AT&T's request is consistent with a request for a network element under the federal Act. In addition, it is without question that access to AIN triggers will promote innovation in the provision of services. Clearly, such access is in the public interest.

Ameritech's argument that this is the wrong forum to make such a determination is not persuasive. The Company, however, has not provided any analysis as to why this matter in principle cannot be considered as a part of this docket in view of the Commission's immediate goal of promoting competition. Access to AIN triggers is within the Commission's authority to consider under Section 13-505.5's public interest concerns.

AT&T did not object to exploring the specifics of AIN triggers in another docket, but recommended that the Commission move forward with ordering that the LECs provide access to their AIN triggers. Access to these AIN triggers will promote innovations with respect to service offerings. The Commission agrees with Staff that if there are any risks to the network present, they should be identified and can be resolved without harm to the network.

The Commission will require Ameritech and Centel to provide access to their AIN triggers, subject to the following: the Commission requests that Ameritech and Centel address the possible risks to the network and incorporate the appropriate remedies to prevent any harm. The Commission presumes that reseller's networks will communicate with Ameritech AIN triggers using industry standard signaling protocols for the purpose of routing calls; accordingly Ameritech will be required to demonstrate why it expects increased risk. If Ameritech or Centel is not able to comply with the requirement to provide AIN triggers on a basis that eliminates possible harm to the network, it must submit a full explanation and showing in support thereof with its compliance tariffs filed in response to the Commission's order in this proceeding. If the problems are such that they can be remedied, it must submit specific plans and a timetable for achieving compliance.

Attachment B

## Bichlien Hoang

*General Manager and Senior Director*
*Intelligent Network Design and Engineering*
*Telcordia Technologies Inc.*
*www.telcordia.com*

*AN:* **Why is the intelligent network (IN) still relevant?**
Despite the definite benefits that packet-based networks can bring, no operator who needs to interconnect with the rest of the world can start from a true Year Zero approach in their network design. For the foreseeable future, services will need to be delivered over a mixed circuit/packet environment. Users won't care how their services are delivered. They will however want to keep the same features, reliability and usability that they have come to expect from the public switched telephone network (PSTN). IP-based applications will need to interact with the PSTN and vice versa across different operators' networks and enterprise networks.

IN techniques -- arguably the first 'converged,' software-based services platform -- can provide a stable and well understood platform for the merging and interaction of these two very different worlds. This mediating 'glue' function is particularly important when it comes to delivering related telecoms service features, such as billing and quality of service.

**How will it interwork with IP-based networks?**
There are a number of different, yet interrelated, initiatives underway to enable this interaction. The most important involves the development of a class of software protocols called Call Agents, such as the Telcordia MGCP (Multimedia Gateway Control Protocol) and SIP (Session Initiation Protocol). These provide a number of standard telecommunications functions in and across the IP environment. Additionally, there are also a number of applications interfaces under development, such as Java Applications for Integrated Networks (JAIN) and PARLAY. These will allow third parties and enterprises to create and run their own applications on public networks.

**IN is the mediating 'glue' when it comes to telecom service features, such as billing and quality of service.**

**Where is the standards work underway?**
As befits work that represents both the telecoms and IP worlds, a number of different industry bodies are involved with an increasingly bewildering array of acronyms. The Internet Engineering Task Force (IETF) has a number of work groups covering the subject, such as PINT (PST/Internet Networking), IPTEL (IP Telephony), SIGTRAN (Signaling Transport) and MEGACO (Media Gateway Control).

In addition, the European Telecommunications Standards Institute's (ETSI's) Project TIPHON (Telecommunications and Internet Protocol Harmonisation Over Networks), for example, is focusing its efforts on the best

ways of delivering voice services across and between the Internet and the PSTN. Specific areas of coverage include developing architectures, call control procedures, protocols, identities (naming, numbering and addressing), charging and billing systems, and the all-important aspects of quality of service and security.

There are also a series of industry bodies and user groups looking at the wider issues involved in developing the network architectures and equipment that will support interworking. In addition to PARLAY and JAIN mentioned earlier, there is also the Softswitch Consortium, the Intelligent Network Forum and the Multiservice Switching Forum.

MGCP is currently under review by the International Telecommunication Union (ITU) as the H.248 standard.

**Next-generation networks using IN will enable subscribers to control their call environments via Web browsers and mobile handsets and it will blur the lines between packet- and circuit-switched service.**

**What other roles does IN have in the next-generation network (NGN) environment?**

One key area of interaction is in the ability to give ordinary subscribers direct access to control their call environments through Web browsers, either via a fixed PC or on the move through a mobile handset. This will also have a major impact on call center users and operators, with an increasing blurring of the lines between public and private network and packet- and circuit-switched service.

# Intelligent Glue for the Future

New protocols are emerging that promise to evolve the IN into the IP world.

Telecommunications International - March 1999

Bichlien Hoang and Geri Weber

---

Throughout the world a fundamental shift is occurring away from traditional, circuit-switched voice networks toward packet-switched networks. These packet-based systems will not only be used to provide multimedia voice, video, and data services, but will eventually be integrated into a single architecture with wireless and satellite technologies as well as the PSTN.

Just as a key component of the PSTN is the intelligent network (IN), network intelligence is the glue that will bind these various networks, platforms and the services they support into one apparently seamless system. Network intelligence is a broader view of the basic IN approach to service control, which by its very nature deals with distributed intelligence.

## Phased Steps

The evolution of IN to network intelligence falls into three phases: in the first, the Internet was not a consideration; in the second, IN and the Internet coexist and increasingly overlap; and in the third, packet-based networks handle voice, data and multimedia while IN provides the functionality that enables enhanced services. In each phase, IN has a different but vital role.

The traditional IN separates the service-control function from the service-switching and connection-control functions typically provided by a conventional switching system. In a typical network, the switching function is found in the service switching point (SSP) and the service control function is in the service control point (SCP).

IN also makes use of special network equipment to play announcements, queue calls, and collect user information. These capabilities, known generically as specialised resource functions, are typically housed on a platform called an intelligent peripheral. This might, for example, play a request that the customer key in a personal identification number (PIN), and then return it to a service-control element for processing. If the peripheral has its own databases against which to check customer information, the ability to monitor for conditions that trip service triggers, or other service-logic processing capabilities, it is an intelligent peripheral or an enhanced services platform. Some service creation may also be done on an intelligent peripheral.

When IN was first defined 10 years ago, this distribution of call processing intelligence was considered revolutionary. Now we know it was just the beginning. IN functions however, do not have to be housed in network elements such as SSP, SCP or IP. Indeed, emphasis on these obscures the tremendous power inherent in the IN's functionality: its distributed architecture and intelligence, as well as the separation of service logic from switching, termination, and connection-control services. This power becomes especially relevant as the world moves towards data networks.

## Changing Traffic and Services

With the growth of data traffic, and particularly Internet traffic, network providers with IN capabilities can take advantage of the synergy between IN and the Internet by designing a wide variety of applications for new revenue generating services. The Internet might carry some of the IN's out-of-band signalling information, and distributed Internet resources might perform some intelligent peripheral functions, such as voice-text conversions.

With this in mind, the PSTN/Internet Internetworking (PINT) working group of the Internet Engineering Task Force (IETF) and the International Telecommunication Union (ITU) are currently looking at ways to use the Internet to control or invoke actions of the PSTN. The two organisations have defined a set of services (request to call, request to fax, and request to hear content) which can be built upon to form specific services for particular applications:
request to call allows a user at an Internet host to request the PSTN to establish a call between two parties:
request to fax allows a user at an Internet-connected host to request the PSTN to fax to a fax machine. The data to fax can be included with the request or specified via URL:

request to hear content allows an Internet-connected host to request the PSTN to establish a phone call to a destination and 'speak' the specified content. The data can be included with the request or specified via URL.
Although these applications would be most efficiently implemented by using IN, they do not have be. However, by extending the PINT concept, the Internet and IN can interwork to provide the same kinds of PSTN/IN services that are now being offered in North America by the major local exchange carriers. With these services, the PINT server is connected to an IN node (either an SCP or a services node). The PINT server acts as a gateway to the IN, allowing the Internet to access the functionality available in IN network elements.

Internet call waiting (ICW) is one example of a feature that extends the PINT concept to generate new services. With ICW, a subscriber on an Internet session who gets an incoming call, would receive a pop-up window on the computer screen displaying the caller's details. The subscriber could take the call or continue online. IN functionality is used to determine that the subscriber has the ICW service, to transmit the calling party information to the ICW subscriber, and to transmit the subscriber response to calling party.

The influence of the Internet on the PSTN will increase in the coming years. Concurrently, the IN capabilities of those switching systems and other network elements will become more and more important, in large part because of their compatibility with Internet approaches such as modular programming and object-oriented technology.

Combining IN and Internet functionality will allow network carriers to use common IN capabilities such as routing to provide new services to ISPs, including capabilities that the carrier itself could use as an ISP or for those customers who purchase Internet services. Moreover, clever use of IN capabilities can actually help directly to relieve congestion in the PSTN caused by traffic trying to access the Internet.

Interworking of current services to provide new vertical services that combine the PSTN and the Internet is one of the keys to tapping the revenue streams of emerging networks. Another is developing new vertical services for the Internet, using IN capabilities that can be marketed to Internet service providers:

- single number service allows an ISP to maintain just one dial-in access number. The ISP's number trips a trigger at the switching system to the service control point (SCP) for instructions on handling the call. The advantage of this service to ISPs is that their customers need to remember only one number:

- alternate route selection is a generic name for any service that selects an access or network egress (to an ISP's modem pool) point for a given ISP using more sophisticated logic than simply mapping the dialled number to a predetermined route. This can be determined by various criteria such as time of day to ensure switching or modem resources are used optimally:

- reroute on busy/no answer allows calls to an ISP to be redirected to available egress locations, transparently to the caller, when the ISP's assets are not available to handle those calls. There is ample reason to believe that ISPs -- and their own customers in turn -- may be willing to pay for such increased reliability of access:

- measurement reporting capabilities can show how many calls are made to each ISP number, as well as showing successful and failed calls, and call durations. Such data is useful to help ISPs engineer modem capacity off a particular egress switch or at a specific access server.

The Final Phase -- For Now

The third phase of network intelligence evolution will reflect the separation of concerns inherent in the IN. The first group of concerns -- switching and transport -- will address the physical configuration of the network so that data can be exchanged. The second set -- control and management -- will address logical requirements and constraints on how data is transported over the physical configuration. It is here that IN functionality comes into play, through such capabilities as routing and rerouting, managing bandwidth and security, network management, and customised service decisions (service logic).

For now, however, most public data networks (both public and private) are focused on pushing as much data through the pipe as cheaply as possible. But once data transmission becomes a low priced commodity, the competitive edge will go to those network providers who can offer their customers the vertical, network-based services which are the hallmark of the IN. Making sophisticated use of network intelligence will be a primary enabler of advanced services over any type of transport and this functionality is inherent -- if not yet fully realised -- in the IN.

In this new paradigm, intelligence is moved through the network via the intelligent peripheral. This is viewed as a concentrator of customer interaction, especially for services requiring extensive user interactions, including those independent of call routing, such as:

- flexible use of resources;
- data (service profiles) and real-time data management; and
- sophisticated new interfaces and intelligence.

Examples of uses include:

- the intelligent peripheral as a gateway/server for Internet services and other IP-network based services; Internet telephony through the intelligent peripheral;
- call centres; and
- the intelligent peripheral acting as a computer telephony integration (CTI) client in conjunction with the server at a customer's premise.

The increasing number of computer-based devices, such as wireless phones, personal digital assistants, and web browsers that give customers easy access to the PSTN is encouraging service providers to look into CTI. Customers who already use these devices to access their messaging also want to use them to manage and configure their services. This is one way to tap new revenue streams, by developing vertical telephony services that leverage IN capabilities for the new transmission networks based on the Internet protocol.

A New Pattern of Protocols

New protocols are emerging to provide customers with the best of both these worlds. Among them, the media gateway controller protocol (MGCP) is now being considered in the IETF and ETSI's Protocol Harmonisation Over Networks (ETSI TIPHON) working group. MGCP, which merges a protocol developed by Bellcore and Cisco and one developed by Level 3, is designed to allow the seamless integration of these two types of networks. Such integration will enable customers to benefit from the lower cost of IP network services, including voice and fax, without modifying existing telephone and fax equipment or dialling access codes. Some carriers already plan to use MGCP, and many next-generation IP telephony service providers will soon require this functionality in their own networks.

Another protocol currently being discussed by the IETF is the media device control protocol (MDCP), defined by Lucent. It presents an object-oriented approach to manipulating resources within a media gateway from a media gateway controller. Given a set of resources, the protocol from the controller

instructs the gateway to manage the different objects and connect them together to provide the necessary media connections.

Another approach to blending IN and Internet protocol technologies is Sun Microsystems' Java advanced intelligent network (JAIN). There are two parts to this initiative. The first is oriented to the signalling system 7 (SS7) protocol stack, including the integrated services digital network user part (ISUP) and the transaction capabilities application part (TCAP). The second is oriented to service creation and new telecom applications. Although both parts are being explored, the SS7 protocol stack is likely to form the bulk of the first release of JAIN. The JAIN SS7 classes are meant to provide the application developer and the service provider independence from their SS7 stack provider. To do so, JAIN provides a Java API representation of the elements of SS7. JAIN also provides a management view into these objects. This step is meant to address incompatibility problems across multiple software and hardware platforms. When it comes to the TCAP layer, initial demonstrations have addressed simple services and message flows. APIs are envisioned for the different types of TCAP applications such as the AIN application part (AINAP), the European IN application part (INAP), and the two mobile application parts (MAP), IS-41 and GSM.

For service creation, Sun intends to define JavaBeans -- or programming objects -- that can use the application level APIs. JAIN builds on the JavaBean concept via a collection of JavaBeans (development tools and middleware components) to facilitate the development of IN services independent of the hardware and software platforms and to be able to work over multiple TCAP applications without modification. This is believed to put IN service development on par with other industries and open it up to Java programmers around the world. The approach is also set to facilitate the distribution of network intelligence to the edge of the network. If the network elements support Java (which is so far an edge technology), services could be created that are distributed between the network element and edge devices, or with the purpose of downloading applets to edge devices as the service requires. This represents another blending of IN and Internet protocol approaches to creating services.

It is certain that the influence of the Internet on the PSTN will increase as it becomes more closely integrated into our everyday lives. Some predict that IP routers will form the basis for our telecoms systems in only a few years. However, this seems unlikely if only because of the huge investments already made in existing systems. What seems more plusible is that the IN capabilities of switching systems and other network elements will become increasingly important as we move into the next phase of network evolution, mainly because of their compatibility with Internet protocol approaches including modular programming and object-oriented technology.

Whether intelligence is in the network or at its edge, IN functionality allows it to be controlled to its best effect. Knowing where to place it and how to manage it is the key -- this will demand an ability to bridge the worlds of the Internet and the PSTN.

Bichlien Hoang is general manager and senior director, intelligent network (IN) design and engineering at Bellcore, and Geri Weber is senior engineer at Bellcore.